REMARKS

The Office Action dated December 14, 2004 has been carefully reviewed and the foregoing amendments made in response thereto. Reconsideration of the grounds of objection is respectfully requested in view of the above amendments and the remarks herein.

Conclusions

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Respectfully submitted,

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By: _____

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Dated: January 7, 2005

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1. A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image comprising the steps of, converting a signal having an X position, a Y position, and an intensity component to a signal having an angle, a radius, and an intensity and filtering out all signal sets that do not have a radius greater than a predetermined radius.

2. A method for processing a signal as in Claim 1, wherein said converting step is accomplished by use of a look-up table for rapid conversion of X and Y pixel addresses to an angle and a radius.

3. (AMENDED) A method for processing a signal as in Claim 2, wherein said look-up table is loaded during initialization of system.

4. (AMENDED) A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image as in claim 3, comprising the further step of discarding all data sets whose intensity signal does not exceed a predetermined value.

5. (AMENDED) A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image as in claim 4, wherein said predetermined value is set during calibration to include a range of values within an expected deviation of the radius of a tube being analyzed.

6. (AMENDED) A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image as in claim 4, wherein said predetermined value is set during calibration to include only a range of values within an expected deviation of the intensity of a reflected signal.

7. (AMENDED) A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image as in claim 4, further comprising the step of converting the analog output of an image sensor into a digital signal by synchronizing the clock of the image sensor with the intensity output to produce an X and said Y signal.

8. A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said sensor from an image sensor receiving a substantially ring shaped image as in claim 4, further comprising the step of storing at least one of each angle, radius, intensity and data set in a register for one of downloading and processing.

9. (AMENDED) A method for processing a signal that includes X, Y, and intensity data sets for each pixel of said image sensor receiving a substantially ring shaped image as in claim 8, further including the step of storing in said register at least one of each angle, radius, intensity and data set which falls within a preselected range.

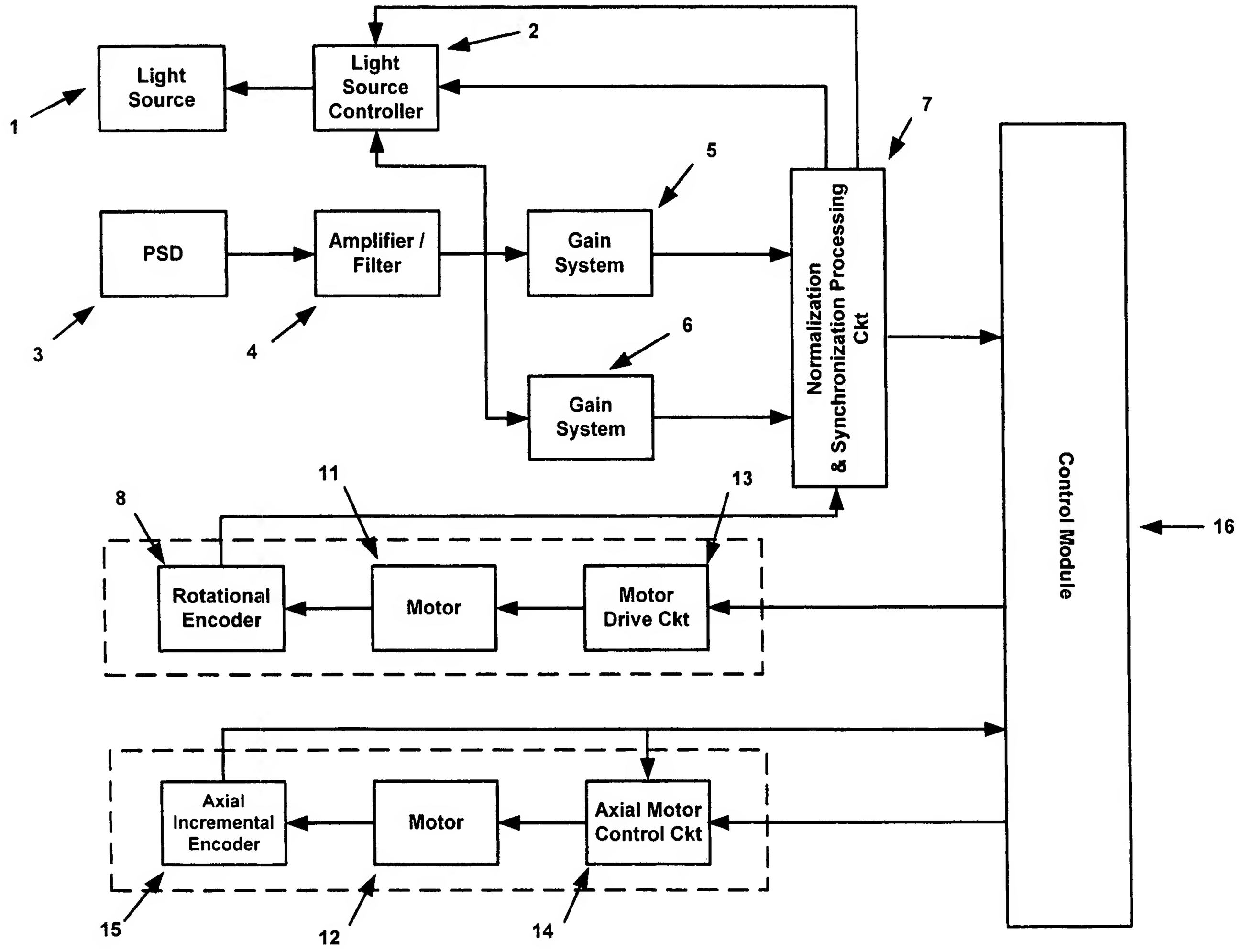

Figure 1

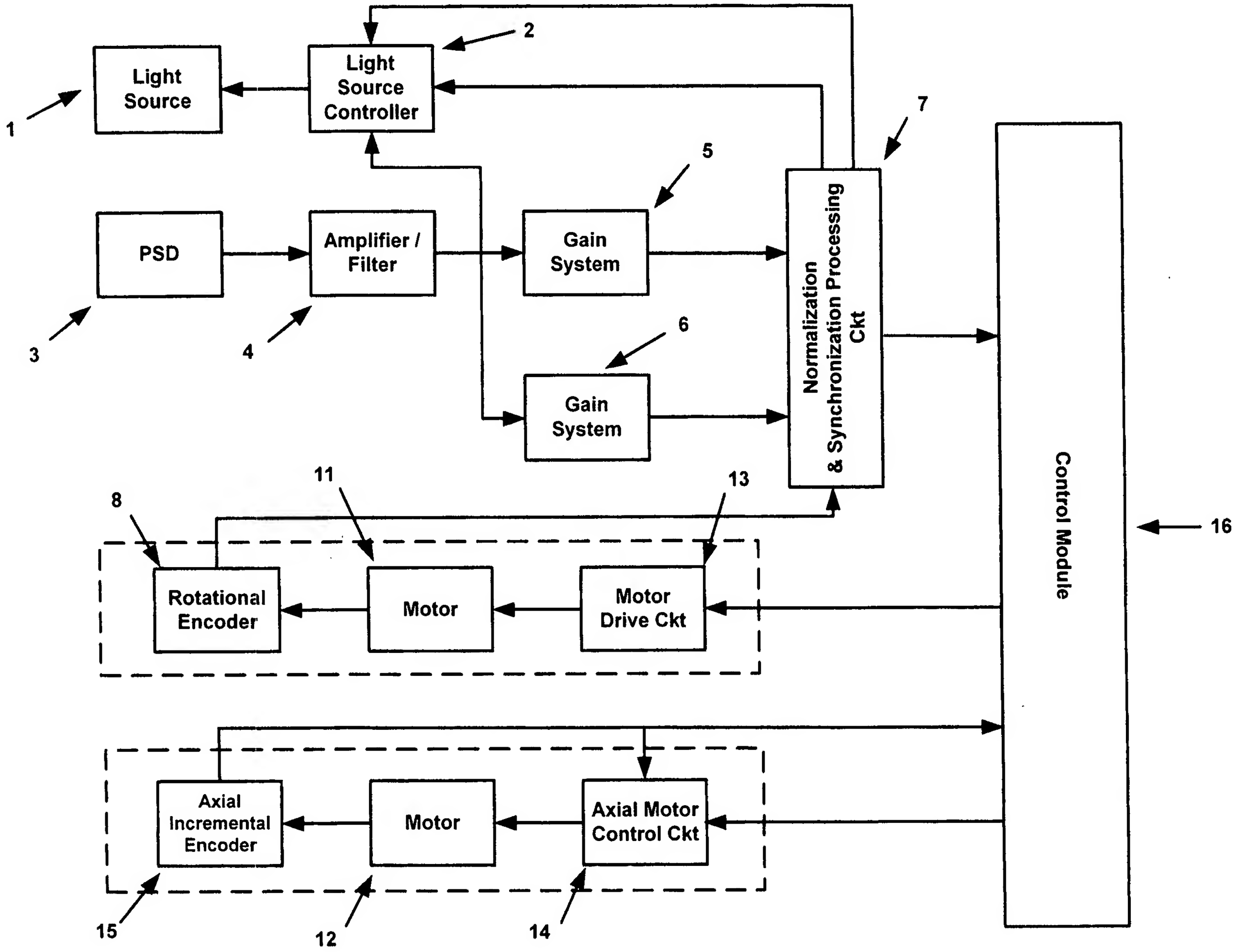

Figure 1